

# CHEMISTRY

0620 Paper 2

2020 — 2024

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1 - (0620/21\_Summer\_2020\_Q1) - States Of Matter

A mixture of ice and water is left to stand and the ice melts.

Which row describes what happens as the ice is melting?

	temperature of mixture	energy changes
A	increases	average kinetic energy of particles increases
B	increases	energy is used to overcome attractive forces
C	stays the same	average kinetic energy of particles increases
D	stays the same	energy is used to overcome attractive forces

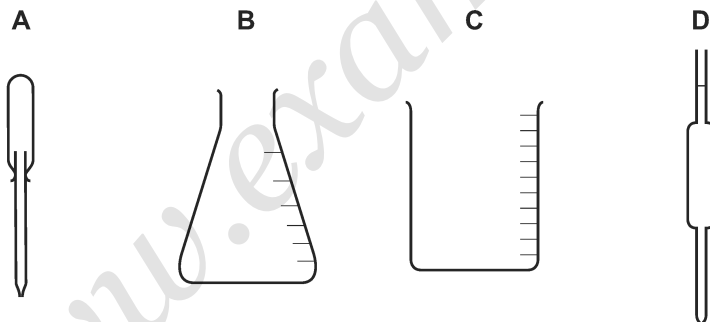
2 - (0620/21\_Summer\_2020\_Q2) - States Of Matter

Which piece of apparatus should be used to measure exactly  $21.4 \text{ cm}^3$  of water?

- A  $25 \text{ cm}^3$  beaker
- B  $25 \text{ cm}^3$  pipette
- C  $50 \text{ cm}^3$  burette
- D  $50 \text{ cm}^3$  measuring cylinder

3 - (0620/22\_Summer\_2020\_Q2) - States Of Matter

Which piece of apparatus is used to measure  $25.0 \text{ cm}^3$  of aqueous sodium hydroxide?



4 - (0620/23\_Summer\_2020\_Q2) - States Of Matter

Which piece of apparatus is used to measure  $13.7 \text{ cm}^3$  of dilute hydrochloric acid?

- A balance
- B burette
- C conical flask
- D pipette

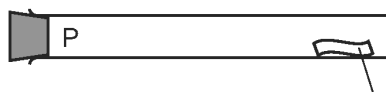
5 - (0620/21\_Winter\_2020\_Q1) - States Of Matter

Which gas has the slowest rate of diffusion?

- A  $\text{H}_2$
- B  $\text{NH}_3$
- C  $\text{CH}_4$
- D  $\text{CO}_2$

6 - (0620/21\_Summer\_2021\_Q1) - States Of Matter

A gas is released at point P in the apparatus shown.



damp universal indicator paper

Which gas turns the damp universal indicator paper red most quickly?

- A ammonia,  $\text{NH}_3$
- B chlorine,  $\text{Cl}_2$
- C hydrogen chloride,  $\text{HCl}$
- D sulfur dioxide,  $\text{SO}_2$

7 - (0620/23\_Summer\_2021\_Q2) - States Of Matter

A  $1 \text{ cm}^3$  sample of substance X is taken. This is sample 1.

X is then converted to a different physical state and a  $1 \text{ cm}^3$  sample is taken. This is sample 2.

Sample 2 contains more particles in the  $1 \text{ cm}^3$  than sample 1.

Which process caused this increase in the number of particles in  $1 \text{ cm}^3$ ?

- A boiling of liquid X
- B condensation of gaseous X
- C evaporation of liquid X
- D sublimation of solid X

8 - (0620/21\_Winter\_2021\_Q1) - States Of Matter

Decane has a freezing point of  $-30^\circ\text{C}$  and a boiling point of  $174^\circ\text{C}$ .

A small sample of decane is placed in an open beaker in an oven at a temperature of  $120^\circ\text{C}$  and at atmospheric pressure for 24 hours.

What happens to the sample of decane?

- A It boils.
- B It evaporates.
- C It melts.
- D It sublimates.

9 - (0620/21\_Winter\_2021\_Q2) - States Of Matter

A student put exactly  $25.00 \text{ cm}^3$  of dilute hydrochloric acid into a conical flask.

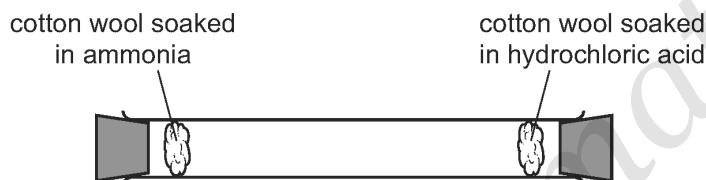
The student added 2.5 g of solid sodium carbonate and measured the change in temperature of the mixture.

Which apparatus does the student need to use?

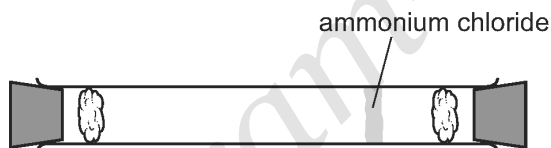
- A balance, measuring cylinder, thermometer
- B balance, pipette, stopwatch
- C balance, pipette, thermometer
- D burette, pipette, thermometer

10 - (0620/22\_Winter\_2021\_Q1) - States Of Matter

An experiment is set up as shown.



After several minutes, a white ring of ammonium chloride appears as shown.



Which statement explains the observation after several minutes?

- A Ammonia gas diffuses faster than hydrogen chloride gas because its molecules have a lower molecular mass.
- B Ammonia gas diffuses faster than hydrogen chloride gas because its molecules have a higher molecular mass.
- C Ammonia gas diffuses slower than hydrogen chloride gas because its molecules have a lower molecular mass.
- D Ammonia gas diffuses slower than hydrogen chloride gas because its molecules have a higher molecular mass.

11 - (0620/23\_Winter\_2021\_Q1) - States Of Matter

Brownian motion and the diffusion of gases provide evidence for the particulate nature of matter.

Which row identifies an example of Brownian motion and how molecular mass determines the rate of diffusion of gas molecules?

	Brownian motion	diffusion
A	pollen grains in water are seen to move randomly	heavier gas molecules diffuse more quickly
B	pollen grains in water are seen to move randomly	lighter gas molecules diffuse more quickly
C	salt dissolves faster in hot water than in cold water	heavier gas molecules diffuse more quickly
D	salt dissolves faster in hot water than in cold water	lighter gas molecules diffuse more quickly

12 - (0620/21\_Summer\_2022\_Q1) - States Of Matter

Which two gases will diffuse at the same rate, at the same temperature?

- A carbon monoxide and carbon dioxide
- B carbon monoxide and nitrogen
- C chlorine and fluorine
- D nitrogen and oxygen

13 - (0620/21\_Summer\_2022\_Q2) - States Of Matter

A student measures the time taken for 2.0g of magnesium to dissolve in 50cm<sup>3</sup> of dilute sulfuric acid.

Which apparatus is essential to complete the experiment?

- 1 stop-clock
- 2 measuring cylinder
- 3 thermometer
- 4 balance

- A 1, 2 and 4    B 1 and 2 only    C 1 and 4 only    D 2, 3 and 4

# ANSWERS

[www.examinmate.com](http://www.examinmate.com)

1 - (0620/21\_Summer\_2020\_Q1) - *States Of Matter*

D

2 - (0620/21\_Summer\_2020\_Q2) - *States Of Matter*

C

3 - (0620/22\_Summer\_2020\_Q2) - *States Of Matter*

D

4 - (0620/23\_Summer\_2020\_Q2) - *States Of Matter*

B

5 - (0620/21\_Winter\_2020\_Q1) - *States Of Matter*

D

6 - (0620/21\_Summer\_2021\_Q1) - *States Of Matter*

C

7 - (0620/23\_Summer\_2021\_Q2) - *States Of Matter*

B

8 - (0620/21\_Winter\_2021\_Q1) - *States Of Matter*

B

9 - (0620/21\_Winter\_2021\_Q2) - *States Of Matter*

C

10 - (0620/22\_Winter\_2021\_Q1) - *States Of Matter*

A